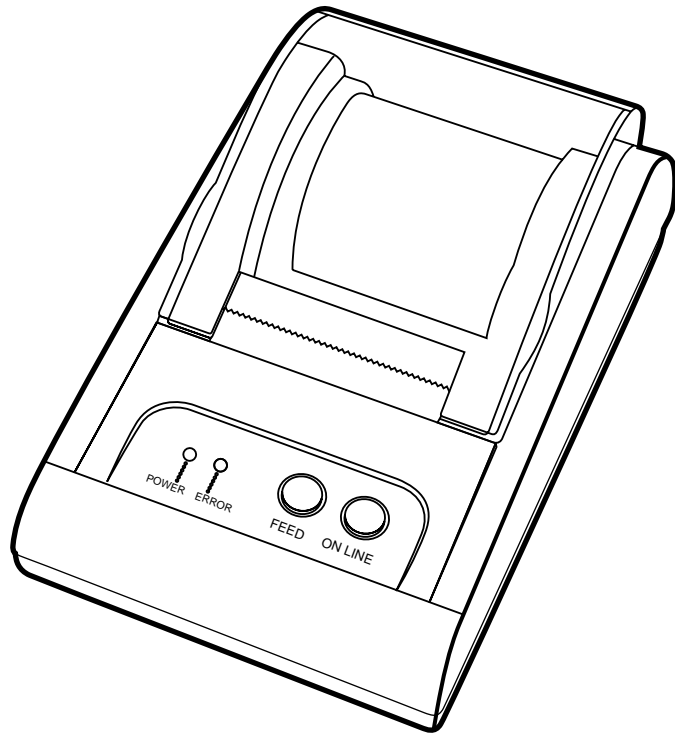


DATE: July. 2001  
MANUAL REVISION 2.0

# STP-102S / STP-102P

## Operator's Manual



### Warning - U.S

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interface when the equipment is operated in a commercial environment. This equipment generates uses, and can radiate radio frequency energy and, if not installed and uses in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### Notice - Canada

This Apparatus complies with class "A" limits for radio interference as specified in the Canadian department of communications radio interference regulations.

### Introduction

The STP-102S and STP-102P Roll Printer is designed for use with electric instruments such as system ECR, POS, banking equipment peripheral equipment, etc.

The main features of the printer are as follows:

1. High speed printing
2. Low noise thermal printing.
3. RS-232 serial interface (STP-102S). Parallel interface (STP-102P).
4. The data buffer allows the unit to receive print data even during printing.
5. Different print densities can be selected by DIP switches.

Please be sure to read the instruction in this manual carefully before using your new STP-102S and STP-102P.

#### NOTE

The socket-outlet shall be near the equipment and it shall be easy accessible.

**SAMSUNG**

ELECTRO-MECHANICS

TEL : 82-31-210-5620  
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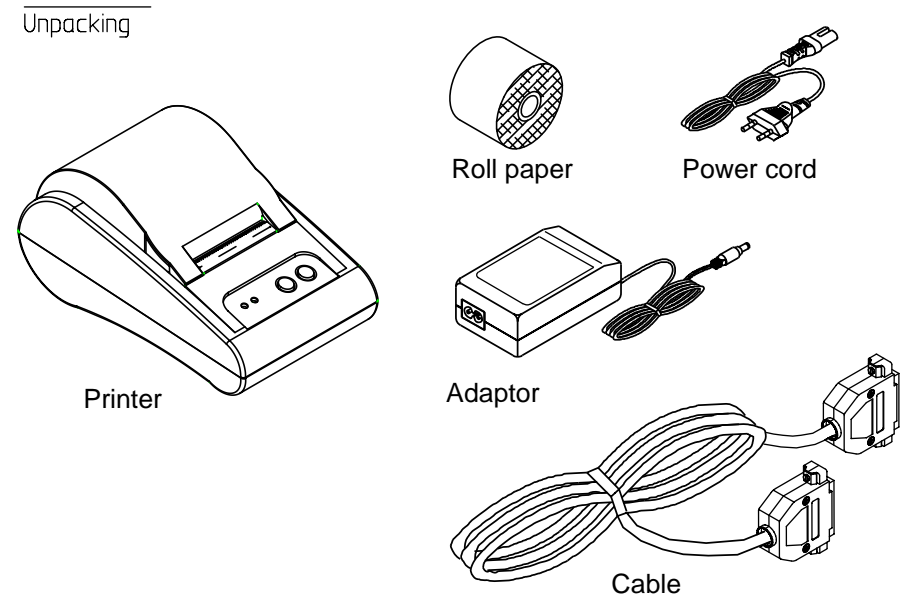
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# Chapter 1. Unpacking

## 1-1. Checking the contents of the Printer.

The items illustrated below are included with your printer. If any items are damaged or missing, please contact your dealer for assistance.

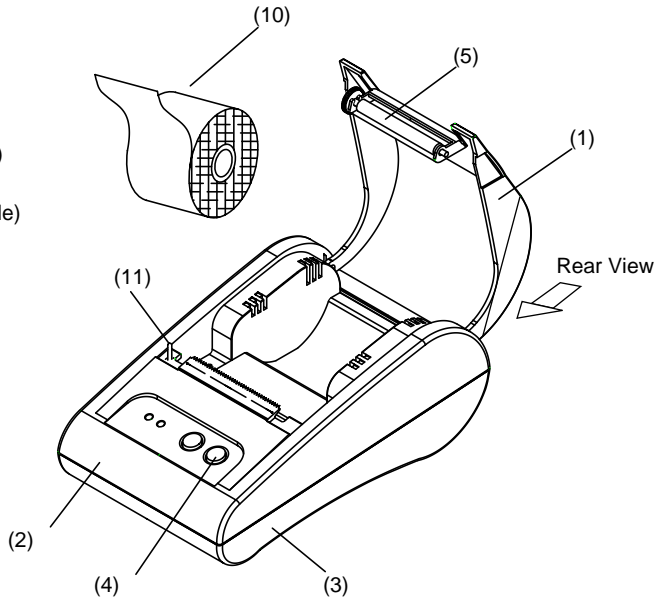


## 1-2. Locating the Printer.

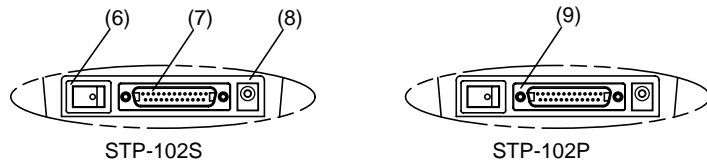
Avoid location in direct sunlight or excessive heat.  
 Avoid or storing the printer in the place subject to excessive moisture.  
 Do not use or store, horizontal surface for the printer. Avoid places subject to intense vibration or shock.  
 Make sure that there is enough space around the printer so that it can be used easily.

### 1-3. Printer Part Names

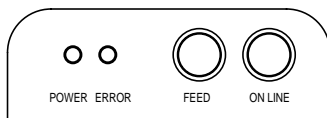
- (1) Cover top
- (2) Case top
- (3) Case bottom
- (4) Control panel
- (5) Roller
- (6) Power switch
- (7) Interface connector (male)
- (8) DC Jack
- (9) Interface connector (female)
- (10) Roll paper
- (11) Detector switch



Rear View



Control Panel



### 1-4. Operating Control Panel

The control panel has two buttons and two lights.



#### Buttons

The control panel buttons perform paper feeding and on line function.

##### ON LINE

Press the ON LINE button to ready to receive data from the computer.

##### FEED

Press the FEED button once to advance paper one line. You can also press the FEED button continuously to feed paper continuously. Feed button is valid when ON LINE button is off.

#### Indicator lights

The control panel lights provide information on printer conditions.

##### POWER(green)

The POWER light is on when the printer power is on.

##### ERROR(red)

- 1) The error LED blinks fast when paper is out.
- 2) The error LED blinks when the Near End Sensor triggered.

## Chapter 2. Connecting the Cable

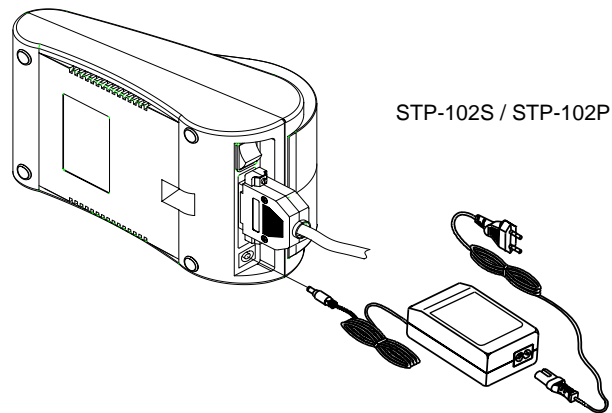
### 2-1. Connecting the AC adapter to your printer

When the printer is used, use the optional AC adapter, AP-1611-UV for your printer.

Using an incorrect power supply may cause fire or electrical.

When connecting or disconnecting the power supply from the printer, make sure that the power supply is not plugged into an electrical outlet ; otherwise you may damage the power supply or the printer

1. Make sure that the printer's power switch is turned off, and that the power supply's power cord is unplugged from the electrical outlet.
2. Check the label on the power supply to make sure that the required voltage matches that of your electrical outlet.
3. Plug the power supply's DC cable connector into the printer's power connector as shown below.



4. Plug the AC adapter's power cord into an electrical outlet.

#### NOTE

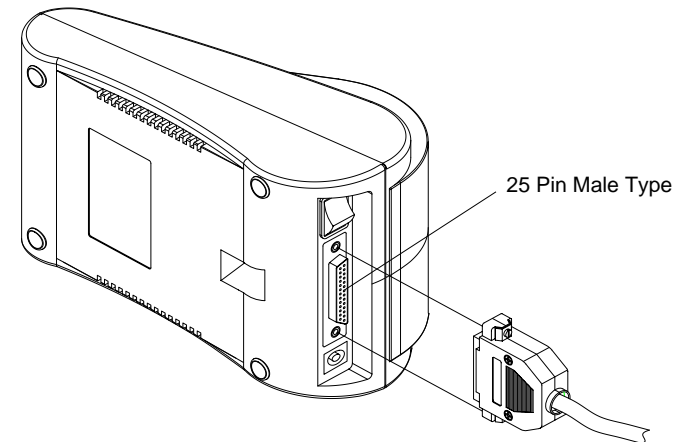
To remove the DC cable connector grasp the connector at the arrow and pull it straight out. Make sure that the main unit's power cord is unplugged before you disconnect the DC cable connector.

### 2-2. Connecting the printer to your Computer

#### STP-102S

You need an appropriate serial interface cable to connect your computer to the printer's built-in interface.

1. Make sure that both the printer and computer are turned off :  
then plug the cable connector securely into the printer's interface connector.
2. Tighten the screws on both sides of the cable connector.



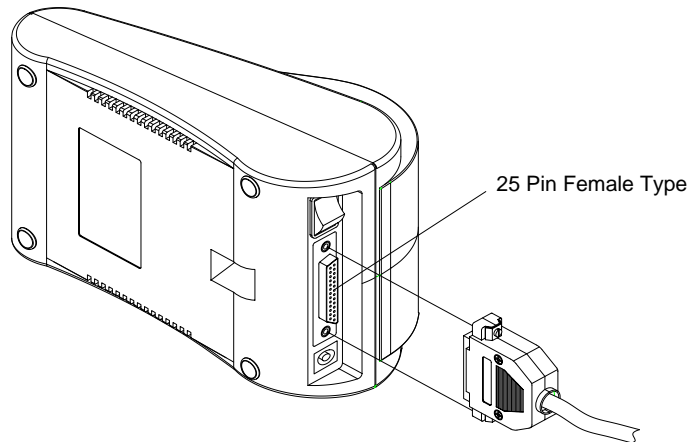
3. Plug the other end of the cable into the computer

## 2-2. Connecting the printer to your Computer

### STP-102P

You need an appropriate serial interface cable to connect your computer to the printer's built-in interface.

1. Make sure that both the printer and computer are turned off :  
then plug the cable connector securely into the printer's interface connector.
2. Tighten the screws on both sides of the cable connector.



3. Plug the other end of the cable into the computer

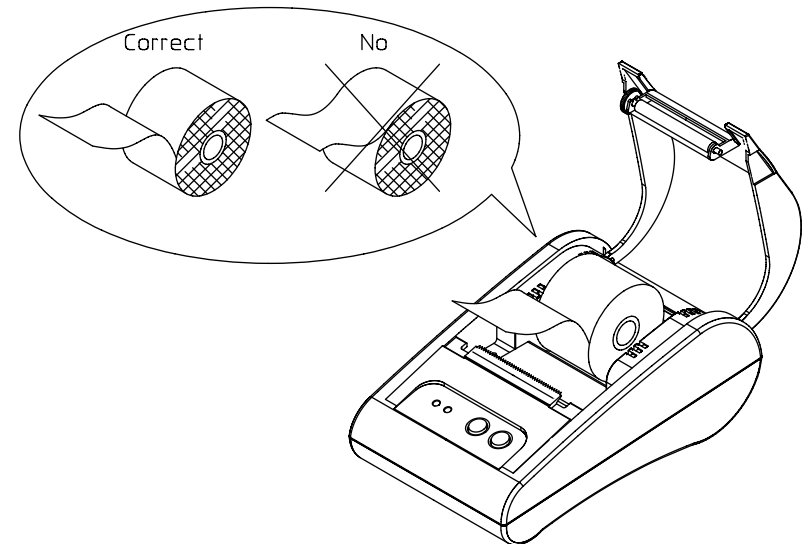
## Chapter 3. Installing the Paper Roll

Use a paper roll that matches the specifications.

### NOTE

The printer must be turned off before installing the paper roll.

1. Open the printer cover and remove the used paper roll core if there is one.
2. Insert the paper roll as shown below.



3. Pull out the paper roll until the paper comes out from the top of the printer. Then close the printer cover.
4. Turn on the Printer.

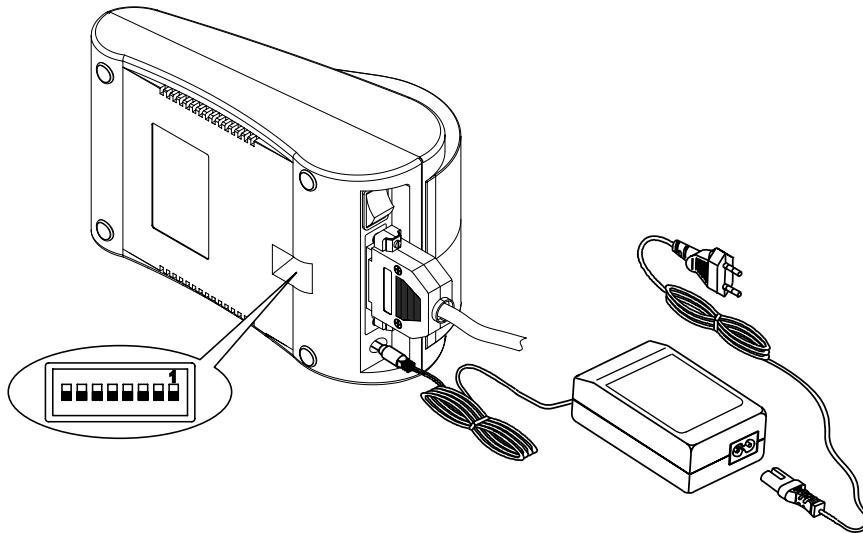
## Chapter 4. Setting the DIP Switches

### CAUTION

Turn off the printer while setting the DIP switch to prevent an electrical short, which can damage the printer.

You can change your interface and printer density settings by changing the DIP switch setting.

1. Make sure the printer is turned off.
2. There are a switch. Notice that ON is marked on each set of switches.  
Use tweezers or another narrow tool to move the switches.



3. Use the following tables to set the DIP switches.

### DIP switch functions

No.	Dip Switch				
	Level	BPS	D/W1	D/W2	S/W3
1	1	2400	ON	OFF	OFF
	2	4800	OFF	ON	OFF
2	3	9600	OFF	OFF	ON
	4	19200	ON	OFF	ON
3	5	38400	ON	ON	OFF
	6	57600	OFF	ON	ON
	7	115200	ON	ON	ON
4	Function	ON		OFF	
	Density	Dark		Normal	
5	Handshaking	Xon/Xoff		DTR/DSR	
6	Reserved	-		-	
7	Language	English		Korean	
8	Reserved	-		-	

### NOTE

Dip Switch 7 must be always set to ON condition.

## Chapter 5. Running the Self-test

### 1. Self-test printing

#### 1) Starting the self test

To start printing the self-test on a paper roll, hold down the PAPER FEED button and turn on the printer with the cover closed. The self-test prints the current printer settings, which provide the following information :

- control software version
- dip switch state

#### 2) Standby state

After printing the current printer status, the printer prints the message "Please press the FEED BUTTON.". The LED indicator blinks and the printer enter the test printing standby state.

Press the FEED BUTTON to start test printing.

### 2. Ending the self-test

After a number of lines are printed, the printer indicates the end of the self-test by printing " \*\* TEST COMPLETED \*\* ".

If the self-test is completed, then you must reboot your printer.

Followings are the self-test results with STP-102S and STP-102P.

## Chapter 6. Code Table

The following pages show the character code tables. To find the character corresponding to a hexadecimal number, count across the top of the table for the For example, 4A=J.

HEX	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
HEX	BIN	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	NUL	DLE	SP	0	@	P	`	p	Ç	É	á	■	L	ll	α	≡
1	0001		XON	!	1	A	Q	a	q	ü	æ	í	■	⊥	⌘	β	±
2	0010		"	2	B	R	b	r	é	Æ	ó	■	⌘	⌘	⌘	⌘	≤
3	0010		XOFF	%	3	C	S	c	s	â	ô	ú	■	⌘	⌘	π	≥
4	0100	EQT		\$	4	D	T	d	t	ä	ö	ñ	⌘	⌘	⌘	Σ	∫
5	0101	ENQ		%	5	E	U	e	u	à	ò	Ñ	⌘	⌘	⌘	σ	∫
6	0110		&	6	F	V	f	v	â	û	á	⌘	⌘	⌘	μ	÷	
7	0111		'	7	G	W	g	w	ç	û	è	⌘	⌘	⌘	τ	≈	
8	1000	BS	CAN	(	8	H	X	h	x	ê	ÿ	ì	⌘	⌘	⌘	φ	°
9	1001	HT		)	9	I	Y	i	y	ë	ö	⌘	⌘	⌘	⌘	θ	•
A	1010	LF		*	:	J	Z	j	z	è	Û	⌘	⌘	⌘	Ω	•	
B	1011		ESC	+	;	K	[	k	{	ï	ç	1/2	⌘	⌘	⌘	δ	√
C	1100	FF	FS	,	<	L	\	l	;	î	£	1/4	⌘	⌘	∞	n	
D	1101	CR	GS	-	=	M	]	m	}	ï	¥	⌘	⌘	⌘	φ	2	
E	1110		.	>	N	^	~	n	~	Ä	Pt	<	⌘	⌘	⌘	€	▪
F	1111		/	?	O	_	o	SP	À	f	>	⌘	⌘	⌘	⌘	⌘	SP
		15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

HEX	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	■ 176	Ł 192	š 208	Ó 224	— 240
1	0001	ü 129	æ 145	í 161	■ 177	Ł 193	Đ 209	β 225	± 241
2	0010	é 130	Æ 146	ó 162	■ 178	Ł 194	É 210	Ô 226	= 242
3	0010	â 131	ô 147	ú 163	 179	Ł 195	È 211	Ô 227	3/4 243
4	0100	ä 132	ö 148	ñ 164	† 180	— 196	È 212	ö 228	
5	0101	à 133	ò 149	Ñ 165	Á 181	+ 197	i 213	Ô 229	§ 245
6	0110	â 134	ú 150	ª 166	Á 182	ã 198	f 214	u 230	÷ 246
7	0111	ç 135	ù 151	º 167	À 183	Ã 199	î 215	b 231	· 247
8	1000	ê 136	ÿ 152	¿ 168	© 184	Ł 200	ï 216	p 232	° 249
9	1001	ë 137	ö 153	® 169	¶ 185	Ł 201	Ƶ 217	Ú 233	· 249
A	1010	è 138	Û 154	¬ 170	 186	Ł 202	ƶ 218	Û 234	· 250
B	1011	ï 139	ø 155	1/2 171	¶ 187	¶ 203	■ 219	Û 235	1 251
C	1100	î 140	£ 156	1/4 172	¶ 188	¶ 204	■ 220	ý 236	3 252
D	1101	ì 141	Ø 157	ì 173	¢ 189	= 205	ì 221	Ý 237	2 253
E	1110	Ä 142	X 158	« 174	¥ 190	† 206	ì 222	— 238	▪ 254
F	1111	Å 143	f 159	» 175	Ł 191	œ 207	■ 223	´ 239	SP 255

PC850 : Multilingual

HEX	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	■ 176	Ł 192	Ł 208	α 224	
1	0001	ü 129	À 145	í 161	■ 177	Ł 193	Ł 209	β 225	± 241
2	0010	é 130	É 146	ó 162	■ 178	Ł 194	¶ 210	Γ 226	≤ 242
3	0010	â 131	ô 147	ú 163	 179	Ł 195	Ł 211	π 227	≥ 243
4	0100	ä 132	ö 148	ñ 164	† 180	— 196	Ł 212	Σ 228	∫ 244
5	0101	à 133	ò 149	Ñ 165	† 181	+ 197	Ł 213	σ 229	∫ 245
6	0110	â 134	ú 150	ª 166	† 182	Ł 198	 214	μ 230	÷ 246
7	0111	ç 135	ù 151	º 167	¶ 183	Ł 199	¶ 215	τ 231	≈ 247
8	1000	ê 136	ì 152	¿ 168	 184	Ł 200	¶ 216	φ 232	° 249
9	1001	Ë 137	ö 153	Ò 169	¶ 185	Ł 201	Ƶ 217	θ 233	· 249
A	1010	è 138	Û 154	¬ 170	 186	Ł 202	Ł 218	Ω 234	· 250
B	1011	ï 139	ç 155	1/2 171	¶ 187	¶ 203	■ 219	δ 235	
C	1100	Ô 140	£ 156	1/4 172	¶ 188	¶ 204	■ 220	∞ 236	n 252
D	1101	ì 141	Û 157	ì 173	¶ 189	= 205	 221	φ 237	2 253
E	1110	Ä 142	Pt 158	« 174	¶ 190	† 206	 222	∈ 238	▪ 254
F	1111	Å 143	Ó 159	» 175	Ł 191	Ł 207	■ 223	∩ 239	SP 255

PC860 : Portuguese



HEX	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	Ï 160	Ï 176	Ł 192	Ł 208	α 224	240
1	0001	ü 129	É 145	Ï 161	Ï 177	Ł 193	Ł 209	β 225	± 241
2	0010	é 130	Ê 146	ó 162	Ï 178	Ł 194	Ł 210	Γ 226	≥ 242
3	0010	â 131	ô 147	ú 163	Ï 179	Ł 195	Ł 211	π 227	≤ 243
4	0100	Â 132	Ë 148	Ï 164	Ï 180	Ł 196	Ł 212	Σ 228	∫ 244
5	0101	à 133	ï 149	Ï 165	Ï 181	Ł 197	Ł 213	σ 229	∫ 245
6	0110	134	û 150	³ 166	Ï 182	Ł 198	Ł 214	μ 230	÷ 246
7	0111	ç 135	ù 151	— 167	Ï 183	Ł 199	Ł 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	î 168	Ï 184	Ł 200	Ł 216	φ 232	° 249
9	1001	ë 137	ÿ 153	ï 169	Ï 185	Ł 201	Ł 217	θ 233	• 249
A	1010	è 138	ÿ 154	ï 170	Ï 186	Ł 202	Ł 218	Ω 234	• 250
B	1011	ï 139	ç 155	1/2 171	Ï 187	Ł 203	Ł 219	δ 235	251
C	1100	î 140	£ 156	1/4 172	Ï 188	Ł 204	Ł 220	∞ 236	n 252
D	1101	ı 141	ÿ 157	3/4 173	Ï 189	Ł 205	Ł 221	φ 237	² 253
E	1110	Ä 142	ÿ 158	« 174	Ï 190	Ł 206	Ł 222	238	▪ 254
F	1111	Š 143	f 159	» 175	Ï 191	Ł 207	Ł 223	239	SP 255

PC863 : Canadian - French

HEX	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	Ç 128	É 144	á 160	Ï 176	Ł 192	Ł 208	α 224	240
1	0001	ü 129	æ 145	í 161	Ï 177	Ł 193	Ł 209	β 225	± 241
2	0010	é 130	Æ 146	ó 162	Ï 178	Ł 194	Ł 210	Γ 226	≥ 242
3	0010	â 131	ô 147	ú 163	Ï 179	Ł 195	Ł 211	π 227	≤ 243
4	0100	ä 132	ö 148	ñ 164	Ï 180	Ł 196	Ł 212	Σ 228	∫ 244
5	0101	à 133	ò 149	Ñ 165	Ï 181	Ł 197	Ł 213	σ 229	∫ 245
6	0110	â 134	û 150	ª 166	Ï 182	Ł 198	Ł 214	μ 230	÷ 246
7	0111	ç 135	ù 151	º 167	Ï 183	Ł 199	Ł 215	τ 231	≈ 247
8	1000	ê 136	ÿ 152	¿ 168	Ï 184	Ł 200	Ł 216	φ 232	° 249
9	1001	ë 137	ÿ 153	¿ 169	Ï 185	Ł 201	Ł 217	θ 233	• 249
A	1010	è 138	ÿ 154	¿ 170	Ï 186	Ł 202	Ł 218	Ω 234	• 250
B	1011	ï 139	ø 155	1/2 171	Ï 187	Ł 203	Ł 219	δ 235	251
C	1100	î 140	£ 156	1/4 172	Ï 188	Ł 204	Ł 220	∞ 236	n 252
D	1101	ı 141	ÿ 157	ı 173	Ï 189	Ł 205	Ł 221	φ 237	² 253
E	1110	Ä 142	Pt 158	« 174	Ï 190	Ł 206	Ł 222	238	▪ 254
F	1111	Å 143	f 159	ÿ 175	Ï 191	Ł 207	Ł 223	239	SP 255

PC865 : Nordic

	HEX	8	9	A	B	C	D	E	F
HEX	BIN	1000	1001	1010	1011	1100	1101	1110	1111
0	0000	SP 128	SP 144	SP 160	SP 176	SP 192	SP 208	SP 224	SP 240
1	0001	SP 129	SP 145	SP 161	SP 177	SP 193	SP 209	SP 225	SP 241
2	0010	SP 130	SP 146	SP 162	SP 178	SP 194	SP 210	SP 226	SP 242
3	0010	SP 131	SP 147	SP 163	SP 179	SP 195	SP 211	SP 227	SP 243
4	0100	SP 132	Ö 148	SP 164	SP 180	SP 196	SP 212	SP 228	SP 244
5	0101	SP 133	SP 149	SP 165	SP 181	SP 197	SP 213	SP 229	SP 245
6	0110	SP 134	SP 150	SP 166	SP 182	SP 198	SP 214	SP 230	SP 246
7	0111	SP 135	SP 151	SP 167	SP 183	SP 199	SP 215	SP 231	SP 247
8	1000	SP 136	SP 152	SP 168	SP 184	SP 200	SP 216	SP 232	SP 249
9	1001	SP 137	SP 153	SP 169	SP 185	SP 201	SP 217	SP 233	SP 249
A	1010	SP 138	SP 154	SP 170	SP 186	SP 202	SP 218	SP 234	SP 250
B	1011	SP 139	SP 155	SP 171	SP 187	SP 203	SP 219	SP 235	SP 251
C	1100	SP 140	SP 156	SP 172	SP 188	SP 204	SP 220	SP 236	SP 252
D	1101	SP 141	SP 157	SP 173	SP 189	SP 205	SP 221	SP 237	SP 253
E	1110	SP 142	SP 158	SP 174	SP 190	SP 206	SP 222	SP 238	SP 254
F	1111	SP 143	SP 159	SP 175	SP 191	SP 207	SP 223	SP 239	SP 255

Space Page

Country	ASCII code (hexadecimal)												
	Hex	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
	Dec	35	36	64	91	92	93	94	96	123	124	125	126
U.S.A.	#	\$	@	[	\	]	^	`	{		}	~	
France	#	\$	à	°	ç	§	^	`	é	ù	è	"	
Germany	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß	
U.K.	£	\$	@	[	\	]	^	`	{		}	~	
Denmark I	#	\$	@	Æ	ø	Å	^	`	æ	ø	å	~	
Sweden	#	☉	É	Ä	Ö	Å	Ü	è	ä	ö	å	ü	
Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì	
Spain	Pt	\$	@	ı	Ñ	ı	^	`	"	ñ	}	~	
Norway	#	☉	É	Æ	ø	Å	Ü	è	æ	ø	å	ü	
Denmark II	#	\$	É	Æ	ø	Å	Ü	è	æ	ø	å	ü	

# Chapter 7. Functions

The commands listed in the table below are available for control of the printer.

## Commands

Command	Name	Command Classification		Standard Mode
		Executing	Setting	
HT	Horizontal tab	<input type="radio"/>		<input type="radio"/>
LF	Print and line feed	<input type="radio"/>		<input type="radio"/>
ESC SP	Set right-side character spacing		<input type="radio"/>	<input type="radio"/>
ESC !	Select print mode(s)		<input type="radio"/>	<input type="radio"/>
ESC \$	Set absolute print position	<input type="radio"/>		<input type="radio"/>
ESC %	Select/cancel user-defined character set		<input type="radio"/>	<input type="radio"/>
ESC &	Define user-defined characters		<input type="radio"/>	<input type="radio"/>
ESC *	Select bit-image mode	<input type="radio"/>		<input type="radio"/>
ESC -	Turn under line mode on/off		<input type="radio"/>	<input type="radio"/>
ESC 2	Select 1/6-inch line spacing		<input type="radio"/>	<input type="radio"/>
ESC 3	Set line spacing		<input type="radio"/>	<input type="radio"/>
ESC ?	Cancel user-defined characters		<input type="radio"/>	<input type="radio"/>
ESC @	Initialize printer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ESC D	Set horizontal tab positions		<input type="radio"/>	<input type="radio"/>
ESC E	Turn emphasized mode on/off		<input type="radio"/>	<input type="radio"/>
ESC J	Print and feed paper	<input type="radio"/>		<input type="radio"/>
ESC R	Select an international character set		<input type="radio"/>	<input type="radio"/>
ESC S	Select standard mode	<input type="radio"/>		<input type="radio"/>
ESC V	Turn 90 clockwise rotation mode on/off		<input type="radio"/>	<input type="radio"/>

Command	Name	Command Classification		Standard Mode
		Executing	Setting	
ESC \	Set relative print position	<input type="radio"/>		<input type="radio"/>
ESC a	Select justification			<input type="radio"/>
ESC c5	Enable/disable panel buttons		<input type="radio"/>	<input type="radio"/>
ESC d	Print and feed paper n lines	<input type="radio"/>		<input type="radio"/>
ESC {	Turn upside-down printing mode on/off		<input type="radio"/>	<input type="radio"/>
GS \$	Select haracter size	<input type="radio"/>		
GS /	Define downloaded bit image	<input type="radio"/>		<input checked="" type="radio"/>
GS :	Start/end macro definition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GS B	Turn white/black reverse printing mode on/off		<input type="radio"/>	<input type="radio"/>
GS L	Set left margin		<input type="radio"/>	<input type="radio"/>
GS P	Set vertical and horizontal motion units		<input type="radio"/>	<input type="radio"/>
GS W	Set printing area width		<input type="radio"/>	<input type="radio"/>
GS ^	Execute macro	<input type="radio"/>		<input type="radio"/>
GS h	Set bar code height		<input type="radio"/>	<input type="radio"/>
GS k	print bar code	<input type="radio"/>		<input checked="" type="radio"/>
GS w	Set bar code width		<input type="radio"/>	<input type="radio"/>

### Command classification

Executing : Printer executes the command, which does not affect the following data.

Setting : Printer uses flags to make setting, and those setting affect the following data.

### Standard mode

: Enabled

: Enabled only when the command is used at the beginning of a line.

: Enabled only when data is not present in the buffer.

# Chapter 8. Control Commands

## Command Notation

[Name] The name of the command.  
 [Format] the code sequence.  
 ASCII indicates the ASCII equivalents.  
 Hex indicates the hexadecimal equivalents.  
 Decimal indicates the decimal equivalents.  
 [ ] k indicates the contents of the [ ] should be repeated k times.  
 [Range] Gives the allowable ranges for the arguments.  
 [Description] Describes the function of the command.

## Explanation of Terms

LSB Least Significant Bit

## Control Commands

### HT

[Name] Horizontal tab.  
 [Format] ASCII HT  
 Hex 09  
 Decimal 9  
 [Description] Moves the print position to the next horizontal tab position.

### LF

[Name] Print and line feed.  
 [Format] ASCII LF  
 Hex 0A  
 Decimal 10  
 [Description] Prints the data in the print buffer and feeds one line based on the current line spacing.

### ESC SP n

[Name] Set right-side character spacing.  
 [Format] ASCII ESC SP n  
 Hex 1B 20 n  
 Decimal 27 32 n  
 [Range]  $0 \leq n \leq 255$   
 [Description] Sets the character spacing for the right side of the character to n dots.

### ESC ! n

[Name] Select print modes.  
 [Format] ASCII ESC ! n  
 Hex 1B 21 n  
 Decimal 27 33 n  
 [Range]  $0 \leq n \leq 255$   
 [Description] Selects print mode(s) using n as follows:

Bit	Off/On	Hex	Decimal	Function
0	Off	00	0	24 char
	On	01	1	42 char
2	-	-	-	Undefined.
3	Off	00	0	Emphasized mode not selected.
	On	08	8	Emphasized mode selected.
4	Off	00	0	Double-height mode not selected.
	On	10	16	Double-height mode selected.
5	Off	00	0	Double-width mode not selected.
	On	20	32	Double-width mode selected.
6	-	-	-	Undefined.
7	Off	00	0	Underline mode not selected.
	On	80	128	Underline mode selected.
1	On	02	2	32 char

\* Determine the values of n by adding the value of all the characteristics you want to select.

### ESC-\$ nL nH

[Name] Set absolute print position.  
 [Format] ASCII ESC \$ nL nH  
 Hex 1B 24 nL nH  
 Decimal 27 36 nL nH  
 [Range]  $0 \leq nL \leq 255$   
 $0 \leq nH \leq 255$   
 [Description] Set the print starting position from the beginning of the line.  
 The distance from the beginning of the line to the print position is  $(nL + nH \times 256)$  dots.

**ESC \* m nL nH d1...dk**

[Name]	Select bit-image mode.
[Format]	ASCII    ESC    *            m   nL   nH   d1 ... dk Hex       1B     2A            m   nL   nH   d1 ... dk Decimal   27     42            m   nL   nH   d1 ... dk
[Range]	m = 0, 1, 32, 33 0 ≤ nL ≤ 255 0 ≤ nH ≤ 3 0 ≤ d ≤ 255
[Description]	Selects a bit-image mode using m for the number of dots specified by nL and nH, as follows. Number of data(k) = (nL + nH x 256) x 3
[Notes]	<ul style="list-style-type: none"> <li>• The nL and nH indicate the number of dots of the bit image in the horizontal direction. The number of dots is calculated by (nL + nH x 256).</li> <li>• If the bit-image data input exceeds the number of dots to be printed on a line, the excess data is ignored.</li> <li>• d indicates the bit-image data. Set a corresponding bit to 1 to print a dot or to 0 to not print a dot.</li> </ul>

**ESC - n**

[Name]	Turn underline mode on/off.
[Format]	ASCII    ESC    -            n Hex       1B     2D            n Decimal   27     45            n
[Range]	0 ≤ n ≤ 2, 48 ≤ n ≤ 50
[Description]	Turns underline mode on or off, based on the following values of n:

n	Function
0, 48	Turns off underline mode.
1, 49	Turns on underline mode (1-dot thick).
2, 50	Turns on underline mode (2-dots thick).

**ESC 2**

[Name]	Select default line spacing.
[Format]	ASCII    ESC    2 Hex       1B     32 Decimal   27     50
[Description]	Set the line spacing to 1/6 inch.

**ESC 3 n**

[Name]	Set line spacing.
[Format]	ASCII    ESC    3            n Hex       1B     33            n Decimal   27     51            n
[Range]	0 ≤ n ≤ 255
[Description]	Sets the line spacing to n dots.

**ESC @**

[Name]	Initialize printer.
[Format]	ASCII    ESC    @ Hex       1B     40 Decimal   27     64
[Description]	Clears the data in the print buffer and resets the printer mode to the mode that was in effect when the power was turned on.

**ESC D n1...nk NUL**

[Name]	Set horizontal tab positions.
[Format]	ASCII    ESC    D            n1...nk    NUL Hex       1B     44            n1...nk    00 Decimal   27     68            n1...nk    0
[Range]	1 ≤ n ≤ 255 0 ≤ k ≤ 32
[Description]	Sets horizontal tab position.
[Notes]	<ul style="list-style-type: none"> <li>• n specifies the column number for setting a horizontal tab position from the beginning of the line.</li> <li>• k indicates the total number of horizontal tab positions to be set.</li> </ul>

**ESC E n**

[Name]	Turn emphasized mode on/off.
[Format]	ASCII    ESC    E            n Hex       1B     45            n Decimal   27     69            n
[Range]	0 ≤ n ≤ 255
[Description]	Turns emphasized mode on or off.
[Notes]	<ul style="list-style-type: none"> <li>• When the LSB is 0, emphasized mode is turned off.</li> <li>• When the LSB is 1, emphasized mode is turned on.</li> </ul>

### ESC J n

[Name] Print and feed paper.  
 [Format] ASCII ESC J n  
 Hex 1B 4A n  
 Decimal 27 74 n  
 [Range]  $0 \leq n \leq 255$   
 [Description] Prints the data in the print buffer and feeds the paper n dots.

### ESC R n

[Name] Select an international character set.  
 [Format] ASCII ESC R n  
 Hex 1B 52 n  
 Decimal 27 82 n  
 [Range]  $0 \leq n \leq 10$   
 [Description] Selects an international character set n from the following table.

n	Character set	n	Character set
0	U.S.A.	5	Sweden
1	France	6	Italy
2	Germany	7	Spain
3	U.K.	9	Norway
4	Denmark I	10	Denmark II

### ESC V n

[Name] Turn 90° clockwise rotation mode on/off.  
 [Format] ASCII ESC V n  
 Hex 1B 56 n  
 Decimal 27 86 n  
 [Range]  $0 < n \leq 3$   $48 \leq n \leq 49$   
 [Description] Turns 90° clockwise rotation mode on/off  
 n is used as follows:

n	Function
0, 48	Turn off 90° clockwise rotation mode
1, 49	Turns on 90° clockwise rotation mode

- [Notes]
- When underline mode is turned on, the printer does not underline 90° clockwise-rotated characters.
  - Double-width and double-height commands in 90° rotation mode enlarge characters in the opposite directions as from double-height and double-width commands in normal mode.
  - These command has no effect in page mode.  
 If this command is input in page mode, the printer performs only internal flag operations.

### ESC \ nL nH

[Name] Set relative print position.  
 [Format] ASCII ESC \ 1n, nH  
 Hex 1B 5C 1n, nH  
 Decimal 27 92 1n, nH  
 [Range]  $0 \leq nL \leq 255$   
 $0 \leq nH \leq 32$   
 [Description] Set the print starting position based on the current position by using the horizontal or vertical motion unit.  
 [Notes]
 

- This command sets the distance from the current position to (nL + nH x 256) dots.
- Any setting that exceeds the printable area is ignored.

### ESC a n

[Name] Select justification.  
 [Format] ASCII ESC a n  
 Hex 1B 61 n  
 Decimal 27 97 n  
 [Range]  $0 \leq n \leq 2$ ,  $48 < n < 50$   
 [Description] Aligns all the data in one line to the specified position.  
 n selects the type of justification as follows:

n	Justification
0, 48	Left justification
1, 49	Centering
2, 50	Right justification

- [Notes]
- The command is enabled only when input at the beginning of the line.
  - Lines are justified within the specified printing area.
  - Spaces set by HT, ESC \$, and ESC \ are all justified.

[Default] n = 0  
 [Example]

Left justification	Centering	Right justification
ABC ABCD ABCDE	ABC ABCD ABCDE	ABC ABCD ABCDE

**ESC c 5 n**

[Name]	Enable/Disable panel buttons.				
[Format]	ASCII	ESC	c	5	n
	Hex	1B	63	35	n
	Decimal	27	99	53	n
[Range]	0 ≤ n ≤ 255				
[Description]	Enables or disables the panel buttons.				
[Notes]	<ul style="list-style-type: none"> <li>• When the LSB is 0, the panel buttons are enabled.</li> <li>• When the LSB is 1, the panel buttons are disabled.</li> </ul>				

**ESC d n**

[Name]	Print and feed n lines.			
[Format]	ASCII	ESC	d	n
	Hex	1B	64	n
	Decimal	27	100	n
[Range]	0 ≤ n ≤ 255			
[Description]	Prints the data in the print buffer and feeds n lines.			

**ESC { n**

[Name]	Turn upside-down printing mode on/off.			
[Format]	ASCII	ESC	{	n
	Hex	1B	7B	n
	Decimal	27	123	n
[Range]	0 ≤ n ≤ 255			
[Description]	Turns upside-down printing mode on or off.			
[Notes]	<ul style="list-style-type: none"> <li>• When the LSB is 0, upside-down printing mode is turned off.</li> <li>• When the LSB is 1, upside-down printing mode is turned on.</li> </ul>			

**GS ! n**

[Name]	Select character size.			
[Format]	ASCII	GS	!	n
	Hex	1D	21	n
	Decimal	29	33	n
[Range]	0 ≤ n ≤ 255			
[Description]	(1 ≤ vertical number of times ≤ 8, 1 ≤ horizontal number of times ≤ 8) Selects the character height using bits 0 to 1 and selects the character width using bits 4 to 5, as following:			

Bit	Off/On	Hex	Decimal	Function
0 ~ 1				Character height selection. See Table 2
4 ~ 5				Character width selection. See Table 1

**Table 1**  
Character Width Selection

Hex	Decimal	Width
00	0	1(normal)
10	16	2(double)

**Table 2**  
Character Height Selection

Hex	Decimal	Width
00	0	1(normal)
10	1	2(double)

**GS :**

[Name]	Start/End macro definition.		
[Format]	ASCII	GS	:
	Hex	1D	3A
	Decimal	29	58
[Description]	Starts or ends macro definition.		

### GS B n

[Name] Turn white/black reverse printing mode on/off.

[Format] ASCII GS B n  
Hex 1D 42 n  
Decimal 29 66 n

[Range]  $0 \leq n \leq 255$

[Description] Turn on or off white/black reverse printing mode.

- [Notes]
- When the LSB is 0, white/black reverse printing mode is turned on.
  - When the LSB is 1, white/black reverse printing mode is turned off.

### GS L nL nH

[Name] Set left margin.

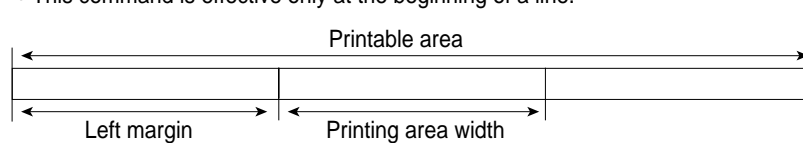
[Format] ASCII GS L nL nH  
Hex 1D 4C nL nH  
Decimal 29 76 nL nH

[Range]  $0 \leq nL \leq 255$

$0 \leq nH \leq 255$

[Description] Sets the left margin using nL and nH in standard mode.

- [Notes]
- The left margin is set to  $(nL + nH \times 256)$  dots from the beginning of the line.
  - This command is effective only at the beginning of a line.



### GS W nL nH

[Name] Set printing area width.

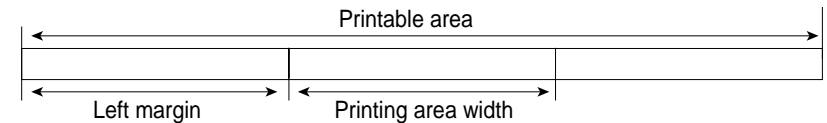
[Format] ASCII GS W nL nH  
Hex 1D 4C nL nH  
Decimal 29 87 nL nH

[Range]  $0 \leq nL \leq 255$

$0 \leq nH \leq 255$

[Description] Set the printing area width to the area specified by nL and nH.

- [Notes]
- The printing area width is set to  $(nL + nH \times 256)$  dots.



- This command is effective only at the beginning of a line.
- The maximum possible setting for the print range is the same as the maximum setting are rounded down to the maximum setting.

### GS ^ r t m

[Name] Execute macro.

[Format] ASCII GS ^ rtm  
Hex 1D 5E rtm  
Decimal 29 92 rtm

[Range]  $0 \leq r \leq 255$

$0 \leq t \leq 255$

[Description]  $0 \leq m \leq 1$

- [Notes]
- Executes a macro.
- r specifies the number of times to execute the macro.
  - t specifies the waiting time for executing the macro.
  - The waiting time is  $t \times 100m$  sec for every macro execution.
  - When  $m = 0$  : the macro executes r times continuously with interval specified by t.
  - When  $m = 1$  : After waiting for the period specified by t, the PAPER OUT LED indicator blinks and the printer waits for the FEED button to be pressed. After the button is pressed, the printer executes the macro once. The printer repeats the operation r times.



**GS h n**

[Name]	Set bar code height.			
[Format]	ASCII	GS	h	n
	Hex	1D	68	n
	Decimal	29	104	n
[Range]	1 ≤ n ≤ 255			
[Description]	Set the height of the bar code. n specifies the number of dots in the vertical direction.			

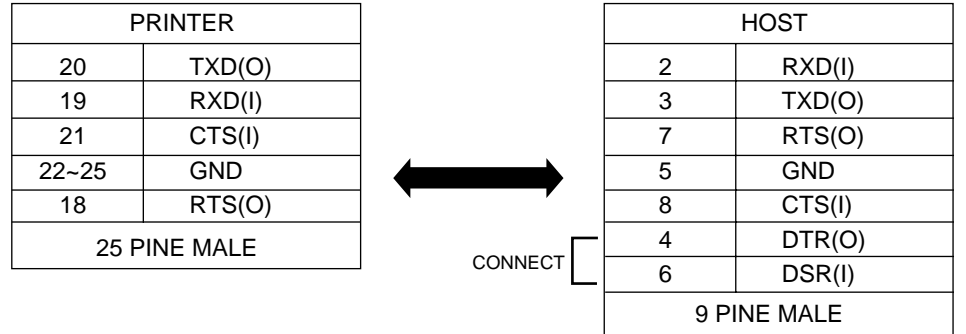
① **GS k m d1... dk NUL**, ② **GS k m n d1... dn**

[Name]	Print bar code.				
[Format]	① ASCII	GS	k	m	d1...dk NUL
	Hex	1D	68	m	d1...dk 00
	Decimal	29	104	m	d1...dk 0
	② ASCII	GS	k	m	n d1... dn
	Hex	1D	68	m	n d1... dn
	Decimal	29	104	m	n d1... dn
[Range]	① 0 ≤ m ≤ 6 (k and d depends on the bar code system used.) ② 65 ≤ m ≤ 73 (n and d depends on the bar code system used)				
[Description]	Selects a bar code system and prints the bar-code. m selects a bar code system as follows. d indicates the character code to be printed and k indicates the number of characters to be printed.				

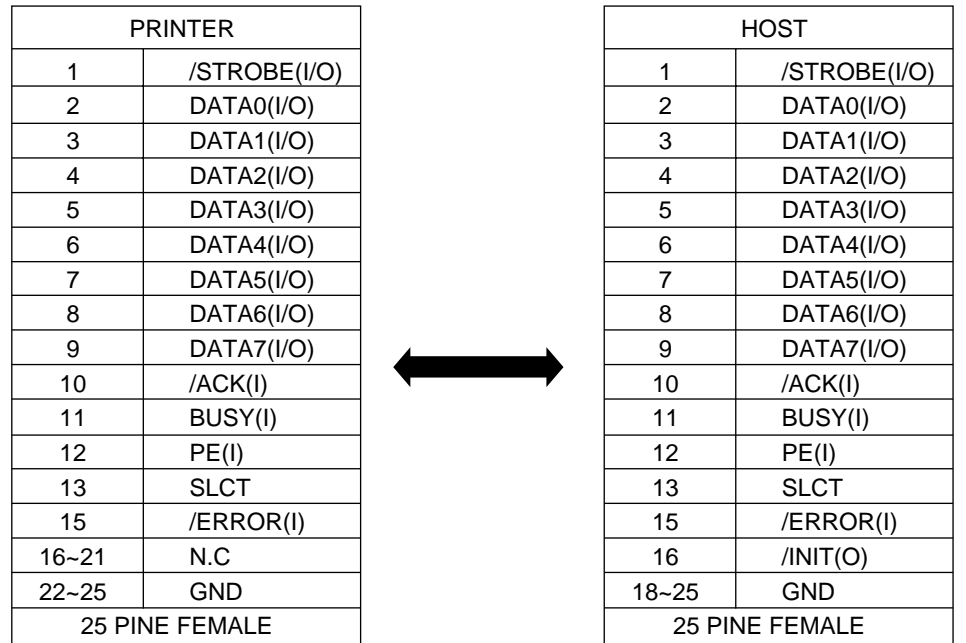
	m	Bar Code System	Number of Characters	Remarks
①	0	UPC-A	11 ≤ k ≤ 12	48 ≤ d ≤ 57
	1	UPC-E	11 ≤ k ≤ 12	48 ≤ d ≤ 57
	2	JAN13(EAN)	12 ≤ k ≤ 13	48 ≤ d ≤ 57
	3	JAN8(EAN)	7 ≤ k ≤ 8	48 ≤ d ≤ 57
	4	CODE39	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d ≤ 90 d = 32,36,37,43,45,46,47
	5	ITF	1 ≤ k (even number)	48 ≤ d ≤ 57
②	6	CODABAR	1 ≤ k	48 ≤ d ≤ 57, 65 ≤ d ≤ 68 d = 36,43,45,46,47,58
	65	UPC-A	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	66	UPC-E	11 ≤ n ≤ 12	48 ≤ d ≤ 57
	67	JAN13(EAN)	12 ≤ n ≤ 13	48 ≤ d ≤ 57
	68	JAN8(EAN)	7 ≤ n ≤ 8	48 ≤ d ≤ 57
	69	CODE39	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 < d < 90 d = 32,36,37,43,45,46,47
	70	ITF	1 ≤ n ≤ 255 (even number)	48 ≤ d ≤ 57
	71	CODABAR	1 ≤ n ≤ 255	48 ≤ d ≤ 57, 65 ≤ d ≤ 68, d = 36,43,45,46,47,58
	72	CODE93	1 ≤ n ≤ 255	0 ≤ d ≤ 127
	73	CODE128	2 ≤ n ≤ 255	0 ≤ d ≤ 127

**APPENDIX A: CONNECTORS**

**SERIAL INTERFACE CONNECTOR (STP-102S)**



**PARALLEL INTERFACE CONNECTOR (STP-102P)**



## APPENDIX B: Specification

Printing method	Thermal line printing	
Dot density	200 x 200 Dpi (8 dot/mm)	
Printing width	48mm	
Paper width	58mm	
Characters per line	42 (Font A)(12x24) ,56(Font B)(9x24)	
Printing speed	Approximately 1.97 inchs/sec 50 mm/sec at 25°C/printing duty 12.5%	
Receive buffer size	15K bytes	
Supply voltage		7.5V 2.2A
Environmental conditions	Temperature	0 ~ 40°C (operating) -10 ~ 50°C (storage)
	Humidity	30 ~ 80% RH (operating) 10 ~ 90% RH (storage)
MCBF	Mechanical	15,000,000 line
	Head	50 million pulse (about 50km)

### ※ Paper

- Paper thickness : 0.06 ~ 0.09mm
- Roll size :  $\phi$ 60 ~ 57(w)
- Roll spool diameter
  - 1) Inside :  $\phi$ 12mm (0.47")
  - 2) Outside :  $\phi$ 18mm (0.71")